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10/664,508	09/16/2003	Terutake Kadohara	1232-5154	1754

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EXAMINER
CUTLER, ALBERT H

ART UNIT	PAPER NUMBER
2622	

NOTIFICATION DATE	DELIVERY MODE
10/29/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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	Application No.	Applicant(s)
Office Action Summary	10/664,508	KADOHARA, TERUTAKE
	Examiner	Art Unit
	ALBERT H. CUTLER	2622

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 August 2008*.
2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.
　　4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) *1-10* is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
　　Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
　　Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
　　a)☐ All　b)☐ Some * c)☐ None of:
　　　1.☐ Certified copies of the priority documents have been received.
　　　2.☐ Certified copies of the priority documents have been received in Application No. _____.
　　　3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
　　* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO/SB/08)
　　Paper No(s)/Mail Date _____.
4)☐ Interview Summary (PTO-413)
　　Paper No(s)/Mail Date. _____.
5)☐ Notice of Informal Patent Application
6)☐ Other: _____.

DETAILED ACTION

1.   This office action is responsive to communication filed on August 8, 2008.

Claims 1-10 are pending in the application and have been examined by the Examiner.

Continued Examination Under 37 CFR 1.114

2.   A request for continued examination under 37 CFR 1.114, including the fee set

forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this

application is eligible for continued examination under 37 CFR 1.114, and the fee set

forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action

has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on August

8, 2008 has been entered.

Response to Arguments

3.   Applicant's arguments filed August 8, 2008 have been fully considered but they

are not persuasive.

4.   Applicant argues, with respect to claims 1 and 6, that Okisu does not teach that

pixel signals are read out from the first light receiving area and the second light

receiving area via a same channel.

5.   The Examiner respectfully disagrees. Claim 1 recites "a control device

configured to control said correction device to multiply a correction value to pixel signals

read out from the first light receiving area and the second light receiving area via a

same channel". Okisu teaches a correction device (194, figure 9), and that the

correction device has only one input channel (see figure 9). Therefore, the pixel signals

are read out of the first and second light receiving areas (CCD12 and CCD13) and into

the correction device (194) and corrected via a same channel. The pixel signals from both light receiving areas enter the correction device via the same channel.

6.   Applicant argues, with respect to claims 1 and 6, that Lin does not teach that the image sensing element has a first light receiving area and a second light receiving area which are formed on an image pickup surface of a semiconductor substrate by a plurality of divisional exposure operations, and instead teaches a plurality of mutually disjoint sensor segments.

7.   The Examiner respectfully disagrees. Lin teaches, in figure 1 and paragraph 0013, a plurality of light receiving areas (7A, 8B, 9C) which are formed on an image pickup surface (i.e. top surface) of a semiconductor substrate (sensor chip, 1) by a plurality of divisional exposure operations. The fact that that the light receiving areas are "mutually disjoint" is inconsequential as claims 1 and 6 do not require otherwise.

8.   Applicant states that further to the above discussion, none of Okisu or Lin disclose or suggest "pixel signals read out from the first light receiving area and the second light receiving area via a same channel.., wherein said correction device corrects the pixel signal output from said image sensing element so that a difference between the pixel signals read out from the first light receiving area and the second light receiving area is canceled," as recited in claim 1.

9.   The Examiner respectfully disagrees. Applicant's arguments fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references.

10.   Therefore, the rejection is maintained by the Examiner.

Claim Rejections - 35 USC § 103

11.   The text of those sections of Title 35, U.S. Code not included in this action can

be found in a prior Office action.

12.   Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Okisu et al.(US 6,571,022) in view of Lin (EP 1,037,458).

Consider claim 1, Okisu et al. teaches:

An image sensing apparatus (camera, figures 2 and 8) comprising:

an image sensing element having a first light receiving area (CCD, 12) and a

second light receiving area (CCD, 13, See figures 2 and 8, column 6, lines 16-27. Two

color image pickup devices (12 and 13) are situated behind the lens (2) to capture left

and right partial images.);

a correction device configured to correct a pixel signal output from said image

sensing element (See figures 8 and 9. The image sensing element (12, 13) outputs

signals to an image processor (19). The image processor (see figure 9) contains a

shading corrector (194, i.e. a correction device), column 7, lines 61-67. The shading

corrector (194) corrects output levels of pixels of the image sensing element (12, 13),

column 8, lines 19-22.); and

a control device (CPU, 25, figure 8) configured to control said correction device

(194) to multiply a correction value to pixel signals read out from the first light receiving

area (12) and the second light receiving area (13) via a same channel and to write the

pixel signals to which the correction value is multiplied to a frame memory (HD Card 10)

as pixel data of a captured image (See figures 8 and 9, column 7, lines 17-21. The

accumulated charges of light receiving area (12) and then the accumulated charges of

light receiving area (13) are successively output. Figure 9 clearly shows only one

channel leading to the A/D converter, image memory, etc. The correction device (194)

uses a correction table to correct the pixel signal levels, column 8, lines 19-22. The

correction table sets a correction coefficient K (i.e. correction value) for each pixel,

column 9, lines 55-58. The correction is applied to the pixels of each light receiving

area (12, 13), column 10, lines 23-27. An image synthesizer composes an image (G)

from the left and right images (G1 and G2) sensed by the respective light-receiving

areas (12 and 13), and outputs the frame image (G) to and HD card (10) via an

interface (output I/F, 197), column 15, lines 21-27.)., wherein

said correction device (194) corrects the pixel signal output from said image

sensing element so that a difference between the pixel signals read out from the first

light receiving area (12) and the second light receiving area (13) is canceled (The

correction device (194) corrects the pixel signal output from the respective light

receiving areas (12, 13) such that the output level is substantially set at the same level

as the output level corresponding to the center of the sensing surface, column 9, lines

50-59, column 10, lines 23-27, see figure 20. Furthermore, Okisu et al. teaches that the

correction table used compensates for a difference of the photoelectric conversion

characteristic between the light receiving areas (12 and 13). See figure 45, step 22,

column 23, lines 28-48. Therefore, the pixel signals output are normalized to the same level, and any differences are cancelled out.).

However, Okisu et al. does not explicitly teach that the light receiving areas (12 and 13) are formed on an image pickup surface of a semiconductor substrate by a plurality of divisional exposure operations.

Lin is in the same field of endeavor as Lin teaches an imaging device (1, figure 1) with multiple light receiving areas (Segments A, B and C, paragraph 0013). Lin also teaches of a synthesizer (recombination processor, 28, figure 1) for composing a single image from the output of the multiple light receiving areas (paragraph 0019, lines 4-11).

However, in addition to the teachings of Okisu et al., Lin teaches that the light receiving areas (Segments A, B and C) are formed on an image pickup surface of a semiconductor substrate by a plurality of divisional exposure operations (See figure 1, paragraph 0013. A sensor array (3) is formed on an image sensing chip (1), which sensor array (3) contains light receiving regions A, B and C. Because the entire array is formed on the same chip, the array (3) containing the light receiving regions (Segments A, B and C) is formed on a single semiconductor substrate.).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to form the light receiving areas taught by Okisu et al. on the same semiconductor substrate by a plurality of divisional exposure operations as taught by Lin for the benefit of minimizing the number of parts of the camera.

Consider claim 2, and as applied to claim 1 above, Okisu et al. further teaches

that said correction device divides the partial image sensing-region light receiving areas

into a plurality of blocks, and performs correction using a different correction value for

each block (Correction is performed on each pixel, column 9, lines 55-58. Furthermore,

the image synthesis can be performed by dividing the partial light receiving areas into a

plurality of blocks (See figure 29, column 16, line 60 through column 17, line 27).

Therefore, because each pixel has a different correction value, each block will also have

a different correction value.).

Consider claim 3, and as applied to claim 1 above, Okisu et al. further teaches:

The light receiving areas (12, 13) include at least three partial image sensing

regions in one direction, and said correction device corrects at least two of the three

partial image sensing regions with correction values by using as a reference a central

partial image sensing region selected from the three partial image sensing regions

(Okisu et al. teaches that three or more image pickup regions (i.e. light receiving areas)

can be used, column 23, line 64 through column 24, line 2. Okisu et al. further teaches

normalizing the pixel values to the center of a light receiving surface (i.e. a central

partial image sensing region), column 9, lines 50-55.).

Consider claim 4, and as applied to claim 1 above, Okisu et al. further teaches

that said correction device performs correction using different correction values in a

boundary direction between light receiving areas (Because different correction values

are used for each pixel (column 9, lines 55-58) of each light receiving area (column 10, lines 24-27), and a boundary can be randomly produced using a variety of shapes (see figure 26A and 26B, column 15, line 51 through column 16, line 3), different correction values are used based on which pixels of the various light receiving regions comprise the boundary.).

Consider claim 5, and as applied to claim 1 above, Okisu et al. further teaches that said correction device performs correction using a different correction value for each color (The light receiving regions each contain a plurality of color filters, column 6, lines 42-45. A different correction value is used for each pixel, column 9, lines 55-58. The correction device (194) applies correction to each color, column 23, lines 44-48. Therefore, because different correction values are applied to each pixel of each color, a different correction value is applied to each color.).

Consider claim 6, Okisu et al. teaches:

An image sensing apparatus (camera, figures 2 and 8) comprising:

an image sensing element having a first light receiving area (CCD, 12) and a second light receiving area (CCD, 13, See figures 2 and 8, column 6, lines 16-27. Two color image pickup devices (12 and 13) are situated behind the lens (2) to capture left and right partial images.) on which color filters of a plurality of colors for sensing an object image are formed (Red, Green and Blue color filters are formed on the surfaces of the light receiving areas (12, 13), column 6, lines 42-45.);

a correction device configured to correct variations between pixels in the light

receiving areas (See figures 8 and 9. The image sensing element (12, 13) outputs

signals to an image processor (19). The image processor (see figure 9) contains a

shading corrector (194, i.e. a correction device), column 7, lines 61-67. The shading

corrector (194) corrects output levels of pixels of the image sensing element (12, 13),

column 8, lines 19-22.) by using a different correction value for each color (The light

receiving regions each contain a plurality of color filters, column 6, lines 42-45. A

different correction value is used for each pixel, column 9, lines 55-58. The correction

device (194) applies correction to each color, column 23, lines 44-48. Therefore,

because different correction values are applied to each pixel of each color, a different

correction value is applied to each color.); and

a control device (CPU, 25, figure 8) configured to control said correction device

(194) to multiply the correction value to pixel signals read out from the first light

receiving area (12) and the second light receiving area (13) via a same channel and to

write the pixel signals to which the correction value is multiplied to a frame memory (HD

Card 10) as pixel data of a captured image (See figures 8 and 9, column 7, lines 17-21.

The accumulated charges of light receiving area (12) and then the accumulated charges

of light receiving area (13) are successively output. Figure 9 clearly shows only one

channel leading to the A/D converter, image memory, etc. The correction device (194)

uses a correction table to correct the pixel signal levels, column 8, lines 19-22. The

correction table sets a correction coefficient K (i.e. correction value) for each pixel,

column 9, lines 55-58. The correction is applied to the pixels of each light receiving

area (12, 13), column 10, lines 23-27. An image synthesizer composes an image (G)

from the left and right images (G1 and G2) sensed by the respective light-receiving

areas (12 and 13), and outputs the frame image (G) to and HD card (10) via an

interface (output I/F, 197), column 15, lines 21-27.)., wherein

said correction device (194) corrects the pixel signal output from said image

sensing element so that a difference between the pixel signals read out from the first

light receiving area (12) and the second light receiving area (13) is canceled (The

correction device (194) corrects the pixel signal output from the respective light

receiving areas (12, 13) such that the output level is substantially set at the same level

as the output level corresponding to the center of the sensing surface, column 9, lines

50-59, column 10, lines 23-27, see figure 20. Furthermore, Okisu et al. teaches that the

correction table used compensates for a difference of the photoelectric conversion

characteristic between the light receiving areas (12 and 13). See figure 45, step 22,

column 23, lines 28-48. Therefore, the pixel signals output are normalized to the same

level, and any differences are cancelled out.).

However, Okisu et al. does not explicitly teach that the light receiving areas (12

and 13) are formed on an image pickup area of a semiconductor substrate by a plurality

of divisional exposure operations.

Lin is in the same field of endeavor as Lin teaches an imaging device (1, figure 1)

with multiple light receiving areas (Segments A, B and C, paragraph 0013). Lin also

teaches of a synthesizer (recombination processor, 28, figure 1) for composing a single

image from the output of the multiple light receiving areas (paragraph 0019, lines 4-11).

However, in addition to the teachings of Okisu et al., Lin teaches that the light

receiving areas (Segments A, B and C) are formed on an image pickup area of a

semiconductor substrate by a plurality of divisional exposure operations (See figure 1,

paragraph 0013. A sensor array (3) is formed on an image sensing chip (1), which

sensor array (3) contains light receiving regions A, B and C. Because the entire array is

formed on the same chip, the array (3) containing the light receiving regions (Segments

A, B and C) is formed on a single semiconductor substrate.).

Therefore, it would have been obvious to a person having ordinary skill in the art

at the time of the invention to form the light receiving areas taught by Okisu et al. on the

same semiconductor substrate by a plurality of divisional exposure operations as taught

by Lin for the benefit of minimizing the number of parts of the camera.

Consider claim 7, and as applied to claim 6 above, Okisu et al. further teaches:

said image sensing element outputs a signal from a different output unit for each

light receiving area (See figures 8 and 9. Light receiving areas (12, 13) each have

different outputs.), and said correction device performs correction using a different

correction value for each output unit (Different correction values are used for each pixel,

column 9, lines 55-58. Furthermore, different correction tables are formed for each

output unit of the light receiving areas (12, 13), column 12, lines 48-50.).

Consider claim 8, and as applied to claim 6 above, Okisu et al. further teaches

that correction is performed using a different correction value for each lens (Different

correction values are used for each pixel, column 9, lines 55-58. Each pixel has a

separate lens which has a different optical characteristic. See figures 11-13, column 8,

lines 47-58.).

Consider claim 9, and as applied to claim 6 above, Okisu et al. further teaches

that correction is performed using a different correction value for each exit pupil position

of an optical system (Different correction values are used for each pixel, column 9, lines

55-58. Each pixel has a separate lens which has a different optical characteristic, which

different optical characteristic would cause different exit pupil positions. See figures 11-

13, column 8, lines 47-58.).

Consider claim 10, and as applied to claim 6 above, Okisu et al. further teaches

that correction is performed using a different correction value for each F-number

(Different correction values are used for each pixel, column 9, lines 55-58. Each pixel

has a separate lens which has a different optical characteristic, which different optical

characteristic would cause each lens to have a different F-number. See figures 11-13,

column 8, lines 47-58.).

Conclusion

13.   Any objections made to the claims by the Examiner are hereby removed in view

of Applicant's response.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALBERT H. CUTLER whose telephone number is (571)270-1460. The examiner can normally be reached on Mon-Thu (9:00-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ngoc-Yen Vu can be reached on (571) 272-7320. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/AC/
10/23/2008

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